

### REMARKS

Reconsideration and further examination of the subject patent application in light of the present Amendment and Remarks is respectfully requested.

A version of the amended claims marked up to show all of the changes relative to the previous version of the claims follows the signature page of this Reply in accordance with 37 C.F.R. 1.121 (c)(3)(ii).

The specification has been amended to correct a typographical error on page 13 of the specification, and Fig. 17 has been amended to correct an erroneous reference number. No new matter has been added.

Claims 1-13 are currently pending in the application and stand rejected.

#### Rejection Under 35 U.S.C. §112

Claims 7 and 12 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, as set forth in paragraphs 1-2 of the Office Action. In view of claims as presently amended, applicants respectfully traverse this rejection. Claim 7 has been amended to more clearly indicate where the front portion of the matrix is located, and the dependency of claim 10 has been changed to provide correct antecedent basis.

#### Rejection Under 35 U.S.C. §102(b)

Claims 1-2, 10-11, and 13 stand rejected under 35 U.S.C. §102(b) as being anticipated by Ver Deutsche Metallwerke AG (the "German reference"), as set forth in paragraphs 3-4 of the Office Action. In view of the claims as presently amended, applicants respectfully traverse this rejection.

The Primary Examiner states that the German reference clearly anticipates applicants' claimed

invention. Although both systems are directed to vehicle bumper systems, the systems are very different, as set forth below.

With respect to applicants' claimed invention, independent claims 1 and 13 as amended, recite a non-metallic cylindrical cell matrix. This element is completely missing in the German reference. The German reference system is a molded, fully encapsulated bumper system where a honeycomb structure 4 is fully encapsulated within a foam portion 3. Additionally, as shown in the drawings and mentioned in the specification, the honeycomb structure is made of metal, presumably aluminum. (Col. 2, line 4 "metallischen energieverzehrenden Elemente," which roughly translated means metal energy absorbing element). Because a metallic energy absorbing element or honeycomb structure is used, a metal face plate 7 must be used in front of the honeycomb structure. The face plate receives the force of the impact from the foam portion, and attempts to evenly distribute the force across the surface area of the honeycomb structure. Without the face plate, even a low speed impact would most likely cause the relatively sharp face of the metallic honeycomb structure to cut through the foam material like a "cookie cutter," thus totally defeating the purpose of the honeycomb structure.

The bumper system in the German reference is specifically directed to a metallic honeycomb structure. Use of such a metallic structure necessitates use of the metal face plate, which increases manufacturing costs and dictates certain construction techniques, as will be discussed below. In sharp contrast, the matrix in applicants' claimed invention is formed of a plastic material, which does not have sharp edges and which is pliable. In an impact, the foam portion transfers the force to the matrix directly without need for a face plate or similar structure. Selection of the matrix material and its configuration is not merely a design choice, and has a direct bearing on the entire system, including manufacturing techniques and overall costs. The element of a non-metallic matrix is completely

missing in the German reference. Because at least one significant element of applicants' claimed invention is missing from the device in the German reference, the German reference cannot anticipate applicants' claimed invention.

With respect to applicants' claimed invention, independent claims 1 and 13 as amended, further recite that the cell matrix is releasably secured within the recesses after formation of the foam portion. This element is also completely missing in the German reference. Because the system disclosed in the German reference uses a metallic honeycomb structure and faceplate, the faceplate must be securely attached to the honeycomb structure. Any gap or spacing could render the system ineffective. To securely affix the faceplate and other metal components to the metallic honeycomb structure, the entire assembly is encapsulated in the foam. As disclosed in the German reference, this means that the honeycomb structure is first "boxed in" by four metal components, namely, the bumper beam 5 on a rear side, the face plate 7 on a front side, and top and bottom plates 8 disposed on top and bottom portions. Thus, the honeycomb structure is essentially surrounded in a metal box.

Next, the entire metal box with the internal honeycomb structure is further encapsulated in the foam so that all of the components are held together in fixed relation to each other. It would be impractical and very costly to somehow use mechanical fasteners or welds to attach the metal "box" components to the honeycomb structure. Additionally, such mechanical fasteners could compromise the structural integrity of the honeycomb structure. Because the honeycomb structure and box arrangement are encapsulated within the foam portion as an integrally formed unit, none of the components can be removed. Thus, in an impact, if the honeycomb structure or any of the metal components are damaged, the entire bumper structure is destroyed. No individual parts of the bumper structure are removable or repairable.

Use of the metal honeycomb structure disclosed in the German reference dictates certain construction arrangement and techniques, such as use of the metal face plate, and encapsulation of all of the components within the foam material. This is very different from applicants' claimed invention in which claims 1 and 13 recite that the cell matrix is releasably secured within the recesses after formation of the foam portion. This means that applicants' cell matrix can be removed from the foam portion in the event of damage. The element of the cell matrix reasonably secured within a recess of the foam portion is completely missing in the German reference.

Because several significant element of applicants' claimed invention are missing from the device in the German reference, the German reference cannot anticipate applicants' claimed invention. Accordingly, applicants assert that independent claims 1 and 13 are allowable over the German reference, and that claims depending from claims 1 and 13, respectively, are allowable as depending from allowable base claims.

Applicants respectfully note that anticipation focuses on whether a claim reads on the product or process that a prior art reference discloses, not on what the reference broadly "teaches." Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 218 U.S.P.Q. 781 (Fed. Cir. 1983). As the Primary Examiner is aware, each and every element of a claim must be shown in the "four corners" of the reference. "To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter." PPG Industries v. Guardian Industries, 75 F.3d 1558, 37 U.S.P.Q.2d 1618 (Fed. Cir. 1996).

#### Rejection Under 35 U.S.C. §103

Claims 3-9 and 11-12 stand rejected under 35 U.S.C. §103 as being unpatentable over the German reference, either alone, or in view of Glance or Hale, as set forth in paragraphs 5-9 of the

Office Action. In view of the claims as presently amended, applicants respectfully traverse this rejection. Applicants reassert the above arguments in traversing the Primary Examiner's rejection regarding the German reference. In the present case, none of the references, taken either individually or in combination, suggest applicants' claimed system. As set forth above, independent claims 1 and 13 are not anticipated by the German reference, nor are the independent claims obvious in light of the German patent. Further, applicants assert that claims depending from claims 1 and 13, respectively, are allowable as depending from allowable base claims.

The art made of record by the Primary Examiner but not relied upon as a basis of rejection, does not, whether taken alone or in combination with the German reference, Glance, and Hale, anticipate or render obvious any of applicants' claims as now amended in the application.

Applicants respectfully request the entry of the above-identified amendment to the application in order to provide a correct antecedent basis for all terms and to place the application in better form for issuance.


For the foregoing reasons, applicants submit that the subject application is in condition for allowance and earnestly solicits an early Notice of Allowance. Should the Primary Examiner be of the opinion that a telephone conference would expedite prosecution of the subject application, the Primary Examiner is respectfully requested to call the undersigned at the below-listed number.

The Commissioner is hereby authorized to charge any additional fee which may be required for this application under 37 C.F.R. §§ 1.16-1.18, including but not limited to the issue fee, or credit any overpayment, to Deposit Account No. 23-0920. Should no proper amount be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit

Account No. 23-0920. A duplicate copy of this sheet(s) is enclosed.

Respectfully submitted,

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PATENT APPLICATION

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of: )  
Tarahomi et al. )  
Serial No.: 09/997,670 )  
Conf. No. 5767 )  
Filed: November 29, 2001 )  
For: ENERGY ABSORBING )  
EXTERNAL COMPONENT FOR )  
VEHICLE )  
Primary )  
Examiner: D. Pedder )  
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A version of the amended claims marked up to show all of the changes relative to the previous version of the claims is shown below in accordance with 37 C.F.R. 1.121 (c)(3)(ii).

1. (once amended) A bumper for mounting on a frame of a vehicle, the bumper comprising:

an elongated beam configured to be operatively mounted to the frame of the vehicle;

a foam portion extending along a portion of the beam;

a fascia surrounding the foam portion, the fascia and the foam portion operatively attached to the beam;

the foam portion having at least one recess formed therein, the at least one recess extending through a predetermined thickness of an inside portion of the foam portion; and

a non-metallic cylindrical cell matrix disposed in the at least one recess, and configured to absorb energy resulting from impact force applied to an external portion of the bumper, the cell matrix being removeably secured within the recess after formation of the foam portion.

7. (once amended) The bumper according to claim 1 wherein a front portion of the matrix located proximate the elongated beam is substantially flush with a front portion of the foam portion along an interface defined between the beam and the foam portion.

12. (once amended) The bumper according to claim [1] 10 wherein the high-density panel is selected from the group consisting of high-density foam, high-molecular weight structural foam molding, high-density composite material, polyester sheet-molded material, vinyl-ester sheet-molded material, thermoplastic composite, bulk-molded compound, and high-molecular weight injection molded polyethylene.

13. (once amended) A bumper for mounting on a frame of a vehicle, the bumper comprising:

an elongated beam configured to be operatively mounted to the frame of the vehicle;

a foam portion extending along a portion of the beam;

a fascia surrounding the foam portion, the fascia and the foam portion operatively attached to the beam;

the foam portion having a plurality of recesses formed therein, the recesses extending through a predetermined thickness of an inside portion of the foam portion; [and]

[an] a non-metallic integrated cylindrical cell matrix disposed with the recesses, the matrix formed of a plurality of cylindrical cells having a longitudinal axis, the cell matrix releasably secured within the recesses after formation of the foam portion; and

the matrix configured to absorb energy resulting from impact force applied to an external portion of the bumper in a direction generally along the longitudinal axis.

A version of the amended paragraph(s) marked up to show all of the changes relative to the previous version of the paragraph (s) are shown below in accordance with 37 C.F.R. 1.121 (b)(1)(iii).

The 2<sup>nd</sup> full paragraph on page 13 of the specification is shown marked up as follows:

As shown in Fig. 11, the recesses 210 do not extend through the entire thickness of the foam portion 204. Rather, the recesses 210 preferably extend only through the foam portion 204 for a distance of about between forty percent to ninety percent of the thickness of the foam portion. Of course,



where the thickness of the foam portion 204 is reduced, such as toward the lateral edges of the bumper 200, the recesses do not extend [as] so deep so as to reduce [retain] the structural integrity of the foam portion. Any suitable depth of recess 210 may be used depending upon the overall requirements and absolute dimensions of the components.